

## Claims

- [c1] What is claimed is:
1. A program system stored in a memory of a computer system comprising:
- at least one computer program; and
- a software library having at least one first-type subroutine module and at least one second-type subroutine module, where the first-type subroutine module is used by the computer program and the second-type subroutine module is not used by the computer program;
- wherein after the software library has passed a compilation process first and then a linkage process, the processed software library is stored in the memory of the computer system, and the second-type subroutine module in the processed software library is changed in a non-recoverable manner after the linkage process so that the memory required to store the second-type subroutine module is saved and can be used by the computer system, and when the computer program is updated later on to use the second-type subroutine module, the second-type subroutine module is stored to the processed software library so that the updated computer program can use both the first-type and second-type subroutine modules in the software library.
- [c2] 2. The program system of claim 1 wherein when storing the second-type subroutine module to the software library when updating the computer program, the first-type subroutine module can be changed in a non-recoverable manner and the second-type subroutine module stored to the software library can be used by the updated computer program directly without undergoing another compilation and linkage process first.
- [c3] 3. The program system of claim 1 comprising a plurality of computer programs and the software library comprising a plurality of first-type subroutine modules wherein each of the first-type subroutine modules is used by at least one computer program and the second-type subroutine module is not used by any of the computer programs.
- [c4] 4. The program system of claim 1 wherein the second-type subroutine module is changed to an easy-compression format in a non-recoverable manner after

the linkage process, and the changed second-type subroutine module is compressed first before storing to the memory of the computer system to save memory space.

[c5] 5.The program system of claim 1 wherein the second-type subroutine module is changed to an easy-compression format in a non-recoverable manner after the linkage process, and the software library is compressed first before storing to the memory of the computer system to save memory space.

[c6] 6.The program system of claim 4 wherein the software library is compressed first and the computer system comprises an operating system for controlling operations of the computer system, and when the operating system executes the compressed first-type subroutine module, it will de-compress the first-type subroutine module first.

[c7] 7.The program system of claim 1 wherein the computer system comprises an operating system for controlling operations of the computer system, and the first-type and second-type subroutine modules are stored in the memory of the computer system through the operating system, and wherein the memory used by the second-type subroutine module can be released by the operating system for other purposes and the second-type subroutine module is non-recoverable after the release.

[c8] 8.The program system of claim 7 wherein the operating system is a Linux system.

[c9] 9.The program system of claim 1 wherein the computer system comprises an operating system for controlling operations of the computer system, and the first-type subroutine module is stored in the memory of the computer system through the operating system after the linkage process while the second-type subroutine module is not stored so as to save memory space.

[c10] 10.The program system of claim 9 wherein the operating system is a Linux system.

[c11] 11.The program system of claim 1 wherein the computer system is an

embedded computer system and the memory is formed by using only memory IC (integrated circuit) chips.

[c12]

12.A program system in an embedded system comprising:  
a computer program stored in a memory of the embedded system; and  
a software library having a first-type subroutine module and a second-type subroutine module, where the first-type subroutine module is used by the computer program and the second-type subroutine module is not used by the computer program;  
wherein the software library after a compilation process is stored in the memory, and the second-type subroutine module in the processed software library is changed in a non-capacity manner after a linkage process so that the memory required to store the second-type subroutine module is saved and can be used by the embedded system, and when the computer program is updated later on to use the second-type subroutine module, the second-type subroutine module is stored to the processed software library so that the updated computer program can use both the first-type and second-type subroutine modules in the software library.

[c13]

13.The program system of claim 12 wherein when storing the second-type subroutine module to the software library when updating the computer program, the first-type subroutine module can be changed in a non-capacity manner and the second-type subroutine module stored to the software library can be used by the updated computer program directly without undergoing another compilation and linkage process first.

[c14]

14.The program system of claim 12 comprising a plurality of computer programs and the software library comprising a plurality of first-type subroutine modules wherein each of the first-type subroutine modules is used by at least one computer program and the second-type subroutine module is not used by any of the computer programs.

[c15]

15.The program system of claim 12 wherein the second-type subroutine module is changed to an easy-compression format in a non-capacity manner after the linkage process, and the software library is compressed first before

storing to the memory of the embedded system to save memory space.

- [c16] 16.The program system of claim 12 wherein the second-type subroutine module is changed to an easy-compression format in a non-capacity manner after the linkage process, and the software library is compressed first before storing to the memory of the embedded system to save memory space.
- [c17] 17.The program system of claim 15 wherein the software library is compressed first and the embedded system comprises an operating system for controlling operations of the computer system, and when the operating system executes the compressed first-type subroutine module, it will de-compress the first-type subroutine module first.
- [c18] 18.The program system of claim 12 wherein the embedded system comprises an operating system for controlling operations of the embedded system, and the first-type and second-type subroutine modules are stored in the memory of the embedded system through the operating system, and wherein the memory used by the second-type subroutine module can be released by the operating system for other purposes and the second-type subroutine module is non-recoverable after the release.
- [c19] 19.The program system of claim 18 wherein the operating system is a Linux system.